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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,190	02/13/2004	Hisayuki Shinohara	900-492	8939

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

LANE, JEFFREY D

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

571

Office Action Summary	Application No. 10/777,190	Applicant(s) SHINOHARA ET AL.	
	Examiner Jeffrey D. Lane	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/13/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Semiconductor Laser Device with Light Receiving Element.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1, 2, 3, 5-8, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US 5,727,009) in view of Roberts et al. (US 6,335,548).

As for claim 1, Tajiri discloses in figures 21-25, A semiconductor laser device comprising: a package having a front surface (Front part of 54), a rear surface (rear part of 54) and an outer peripheral surface (the exposed surfaces of 61 and 54); a semiconductor laser element 58 and a light receiving element 60 provided on the front surface; a plurality of leads 53 arranged in spaced relation on the front surface as extending outward from the package; and an optical element 62 supported above the front surface with its optical axis perpendicular to the front surface (See figure 22) for guiding a laser beam emitted from the semiconductor laser element toward an object and guiding light reflected on the object to the light receiving element (See figure 25); wherein the outer peripheral surface is configured so as to be fitted in a cylindrical hole 63b having an axis parallel to the optical axis of the optical element (see figure 22), and has a recess extending from the front surface to the rear surface 54d, and with proximal ends thereof electrically connected to the semiconductor laser element 58 and the light receiving element 60 (See figure 24). However, Tajiri does not disclose bending the leads in a perpendicular manner. Roberts teaches, "Bending the leads 205 in the opposite direction, as shown in FIG. 18, enables a typical end-looker configuration where the direction of radiation is away from the plane of the circuit board." (See Column 29 lines 53-56) therefore it would have been obvious at the time of the invention for one of ordinary skill to bend the leads of Tajiri's laser device to aim the device away from a printed circuit board.

As for claim 2, Tajiri further discloses, the optical axis of the optical element 62 is aligned with the axis of the cylindrical hole (see figure 22).

As for claim 3, Tajiri further discloses, the package comprises a planar substrate 54 or 63, and a plurality of projections (53 or the 54c) arranged in spaced relation as projecting outward from the substrate parallel to the substrate 52 (till bent see claim 1), and the recess is defined between adjacent two of the projections (53 or 54c).

As for claim 5, Tajiri further discloses in figure 21, the substrate 54 is rectangular, and the projections 53 project outward from four corners of the substrate

As for claim 6, Tajiri discloses all that pertains to claim 5 as disclosed above; However, Tajiri does not disclose bending the leads in a perpendicular manner. Roberts teaches, "Bending the leads 205 in the opposite direction, as shown in FIG. 18, enables a typical end-looker configuration where the direction of radiation is away from the plane of the circuit board." (See Column 29 lines 53-56) therefore it would have been obvious at the time of the invention for one of ordinary skill to bend the leads of Tajiri's laser device to aim the device away from a printed circuit board.

As for claim 7, Tajiri further discloses, a mirror (See Column 5 line 29) provided on a surface of the substrate 54 for reflecting the laser beam emitted from the semiconductor laser element 58 perpendicularly to the substrate 54 surface.

As for claim 8, Tajiri further discloses, the substrate and the projections 54c are integrally formed of the same material.

As for claim 10, Tajiri further discloses, the leads each include an inner lead portion present inside the package 54 and an outer lead portion present outside the package, and the outer lead portions of the leads are arranged at greater intervals than

the inner lead portions of the leads (See figure 24; the area on the left has the edges bent in and therefore have a smaller interval than the out side leads).

As for claim 13, Tajiri discloses, a package having a front surface (Front part of 54), a rear surface (rear part of 54) and an outer peripheral surface (the exposed surfaces of 61 and 54); a plurality of interconnection leads 53 arranged in spaced relation on the front surface of the package as extending outward from the package; a semiconductor laser element 58, a reflective mirror 59a (see Column 5 line 29), a light receiving element 60 and an optical element 62 provided on the front surface of the package, the optical element being adapted to guide a laser beam emitted from the semiconductor laser element toward a medium carrying external information recorded thereon and further guide light reflected on the medium to the light receiving element (See figure 25); wherein the leads 53 are electrically connected to the semiconductor laser element 58 and the light receiving element 60, the leads 58 each including an inner lead portion present inside the package and an outer lead portion present outside the package, the outer lead portions of the leads being arranged at greater intervals than the inner lead portions of the leads (See figure 24; the area on the left has the edges bent in and therefore have a smaller interval than the out side leads). However, Tajiri does not disclose bending the leads in a perpendicular manner. Roberts teaches, "Bending the leads 205 in the opposite direction, as shown in FIG. 18, enables a typical end-looker configuration where the direction of radiation is away from the plane of the circuit board." (See Column 29 lines 53-56) therefore it would have been obvious at the time of the invention

for one of ordinary skill to bend the leads of Tajiri's laser device to aim the device away from a printed circuit board.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US 5,727,009) in view of Roberts et al. (US 6,335,548) as applied to claim 3 above, and further in view of Tsuji (US 2002/0101574). Tajiri and Roberts disclose all that pertains to claim 3, as shown above. However, neither Tajiri nor Roberts expressly disclose air-cooling. Tsuji discloses, "a suction apparatus for drawing out air from inside the chassis is provided as the cooling device. By this suction apparatus, outside air is introduced into the chassis, to thereby cool the inside of the chassis efficiently." (Paragraph [0017]).

Therefore it would have been obvious at the time of the invention to air-cool the semiconductor laser element to have it cooled efficiently.

5. Claims 9 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. (US 5,727,009) in view of Roberts et al. (US 6,335,548) as applied to claims 3 and 10 above, and further in view of Ochi et al. (US 5,776,802).

Tajiri and Roberts discloses all that pertains to claims 3 and 10 as shown above. However neither Tajiri nor Roberts disclose a lead bending spacer. Ochi et al. discloses, "a plurality of connecting leads which had been extended inward from a lead frame main body, which is separated from the lead frame main body, and which is electrically connected with an electrode of the semiconductor chip; a plurality of fixing leads which had been extended inward from the lead frame main body, which is separated from the lead frame main body, each fixing lead having a distal end bent toward the semiconductor for supporting the semiconductor chip... Therefore, the damage the semiconductor chip receives from the fixing

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leads is small," (Column 3 lines 32-40). Therefore it would have been obvious to one of ordinary skill in the art to have the lead bending spacer to minimize damage to the semiconductor.

Allowable Subject Matter

6. Claim 12 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

There is nothing found in the references cited that teaches using a plurality of support blocks projecting out of the substrate where the support blocks define the outer peripheral surface and where the peripheral surface, as defined, is fitted into a cylindrical hole, with the accompanying limitations.

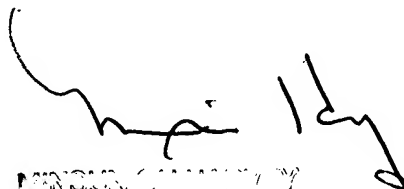
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey D. Lane whose telephone number is (571) 272-1676. The examiner can normally be reached on Monday thru Friday 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrey D Lane
Examiner
Art Unit 2828

JDL


MINSUN HARVEY
Supervisor